James Zafiri

07/18/2023

CSC6023 – Module 02

**Project 02 Report**

Overall, I thought that this assignment was a great experience. It was nice to work with trees again since they are a complex and important data structure that are good to get your feet wet with. The difficult part was creating a new method on the AVLTree class that could search through the nodes of the tree. However, by analyzing the other methods and playing around a bit, I was able to make it work without losing Big-Oh class of O(logn) efficiency.

What I created was an implementation of a binary search method, which we know is logarithmic and has O(logn) time complexity. In addition to this, I know I was able to keep O(logn) efficiency within the tree since I closely mimicked the insertion/deletion methods. I did not do any sorting or nested loops within the functions; it is just completing a simple binary search within the tree. This is done without needing to go through the entire tree, so it is better than O(n) time.

It was nice using the original code we got and the sample array that is used in the main method (which I had to comment out). I matched up the insertion and deletion of elements using that list of numbers and what was printed out with the helper method, so I know the tree was being put together properly. I found this project to be successful and very helpful.